

Amendments to the Drawings:

The attached sheet of drawings includes changes to Figure 1A. This sheet, which includes Fig. 1A, replaces the prior sheet including Fig. 1A.

REMARKS

This amendment is in response to the Office Action mailed February 29, 2008.

In the Office Action, the Examiner objected to the drawings. In particular, the Examiner stated that use of the term “downward pulses” was new matter and requested this be removed from the drawings. Accordingly, as the Examiner requested, a new Figure 1A is submitted herewith which has deleted the words “downward pulses” and substituted in its place text based in the original specification and figures.

In particular, the specification refers to a bottom power (Pb) and shows this in each of Figures 4-7 as the low power which the recording mark reaches during the recording of a pulse. Accordingly, as based on the specification and Figures 4-7, the text refers to “each low power pulse during the recording of a mark.” This, of course, refers to the bottom power Pb as stated in the text of the application as filed, page 2, last line and page 17, first full paragraph, and as shown in Figures 4-7. This is the lowest power level that the laser beam reaches during the recording of a mark. The Examiner also referred to this as a bottom power level, Pb.

As the Examiner stated in the Office Action, page 3, the original specification refers to the power of the laser beam at a low power as a bottom power Pb. This is the lowest power which the laser beam reaches during the recording of the pulse. Thus the phrase “low power pulse” has been substituted in place of the phrase “downward pulses” and refers to a bottom power level Pb as the Examiner suggested on page 3 of his Office Action in the note.

Applicants also refer to page 2, last line of the application as filed, in which the text states that the “power of the laser beam is lowered to a bottom power Pb.” Figures 4-7 also show this low power level and refer to it as Pb. Thus, the low power pulse is described and shown in the specification and is not new matter.

Accordingly, the specification has been amended to conform to the figures and refer to the bottom power of each low power pulse during the recording of a mark.

In paragraph 6, the Examiner objected to the word “substantially,” stating that it makes the claims indefinite. Applicants strongly disagree. The word substantially is a term of art within patent claims, having the meaning in this claim of “being the same within the limits of the circuit.” As the Examiner knows, no electrical pulses are exactly “the same” as each other.

If magnified, an accused infringer will find a difference. Rather, minor variations may occur based upon noise levels, minor fluctuations in the circuit, performance, variations of the components, parasitic affects or other unexpected or undesirable features. In addition, all circuits have some minor variation within themselves. Thus, while the target design is that the signals be the same level, applicants do not wish a person to avoid infringement merely by relying on having pulses which are near the same and designed to be the same but which are slightly different from each other based on minor fluctuations in the electrical equipment, and other features. Thus, the phrase "substantially the same" is believed to be well understood by a person of ordinary skill in this art, and to carry the meaning of having power levels which are designed to be the same as each other but which may vary slightly with respect to each other based on real-world effects. Applicants request that the objection based on the phrase "substantially," be withdrawn.

The Examiner has rejected claims 1, 3, 9-12, 14, 16, 18, and 20-21 under 35 U.S.C. § 102(e) as being anticipated by Miyamoto et al., 6,236,635 (hereafter "Miyamoto").

Based on the claims as now presented, applicants disagree and believe that the present claims are patentable in light of Miyamoto.

The recording pulse of the present invention has particular features, all claimed in combination with each other. A first feature is that of setting the recording power of a top pulse and/or a last pulse to have a lower power level than the power level of an intermediate pulse between the top pulse and the last pulse. This particular feature is specifically illustrated in Figures 6 and 7. As can be seen in Figures 6 and 7, there is an intermediate pulse between the first pulse (also called the top pulse) and the last pulse. This intermediate pulse has a power level which is higher than the power level of either the top pulse or the last pulse. There can, of course, be two or more such intermediate pulses. In addition, the recording pulses have a further, additional feature. This is the feature of having a cooling pulse after the last recording mark. This cooling pulse is set "to be wider than a pulse width of each of the top pulses, the intermediate pulses, and last pulse." This particular feature of the long width cooling pulse as compared to other pulses is part of the combination. Namely, it is a combination with the prior feature of having intermediate pulses at a higher power level than a top pulse and a last pulse.

Thus, claim 1 specifies a combination of these two features in the recording of the same recording mark.

In addition, claim 1 has yet an additional feature within the combination of a signal for forming a recording mark. Namely, claim 1 further specifies that the bottom power of each low power pulse is substantially the same. In particular, there is a bottom power P_b that is the low power that the laser achieves during the recording of the mark. This bottom power P_b is substantially the same for each of the low power pulses, including the cooling pulse. Namely, the power for each is substantially the same as each other low power pulse. This particular feature is illustrated in Figures 6 and 7. As can be seen, in between each recording mark the power of the laser is reduced to a bottom power P_b . The power for the laser for each bottom pulse P_b is set to be the same so that all bottom pulses P_b have the same power. This includes the cooling pulse, which has the same low power level as the lowest power of any bottom pulse, all bottom pulses having the same power level.

As the Examiner noted, the specification refers to a bottom power and pulses having a bottom power, and for convenience these are referred to as bottom power pulses. These are the low power those pulses as shown in Figures 6 and 7 which are at the bottom power level.

This particular feature of the bottom powers of each low power pulse, including the cooling pulse, having the same power level as each other is also claimed in combination with the other features for the making of a recording mark.

Each of the above features are part of the combination in claim 1. This particular specified recording pattern and combination is novel and not obvious in light of the prior art of Miyamoto.

There is no teaching within the text or figures of Miyamoto of the particular combination of claim 1 as specified.

Turning to the teachings of Miyamoto, it can be seen that in Figure 6 of Miyamoto there are intermediate pulses which have a power level higher than a top pulse and a last pulse. However, in this instance the cooling pulse is not wider than the top pulse or the last pulse, instead it is exactly the same length, if not shorter.

Applicants recognize that Figure 11 of Miyamoto discusses variations in the width of the cooling pulse. This variation is specific to those pulses shown in Figure 11, in which all recording pulses have the same power level. Thus, it is clear that the particular combination of having an intermediate power level does not apply to the teachings of Figure 11, nor do applicants think that these teachings can be combined since Miyamoto is clearly talking about different pulse train patterns in Figure 6 and Figure 11.

If a person were to combine the teachings of Figure 6 and Figure 11, Miyamoto has such a teaching, which is his Figure 12. Thus Miyamoto himself combined the teachings of Figures 6 and 11 to make a new recording pattern, which recording pulse train he shows in Figure 12. In this recording pulse train of Figure 12, he has intermediate pulses which are a higher power level than the top pulse and the last pulse. He clearly shows that the bottom power of each low power pulse is distinctly different at various locations and that not all bottom pulses have the same power level. Further, and more important, the cooling pulse has a much different power level, which is higher than any of the bottom power pulses. Thus, the cooling pulse itself is at a higher power level than any of the intermediate power pulses. The teachings of Figure 12 of Miyamoto are a very clear teaching that the present claim 1 is not taught in Miyamoto and these claims should be allowed.

Miyamoto does not teach the claimed combination of signal levels. These signal levels bear a particular relationship to each other within one recording pulse train, which is not taught in the prior art.

If a person were to attempt to modify any at the pulse trains of Miyamoto, this would affect other features of his pulse train and he would not teach the particular claimed combination.

As can be seen by viewing Miyamoto's Figures 3-7 and 11-12, even minor changes in one signal level affect the other levels. Applicants' claimed combination is novel and not obvious.

Each of claims 12 and 16 have been amended to include similar limitations to those of claim 1, and should therefore be allowed for the reasons previously explained.

Submitted herewith is new claim 22. This new claim 22 contains a different, and additional limitation. New claim 22 specifies that in between each recording pulse there is a pulse provided having a bottom power level. In addition, "the width of the bottom power pulses being selected have a width longer than the recording pulse it immediately follows."

As can be seen in Miyamoto, he shows the pulse between the recording pulses having the bottom power being of the same width as each of the recording pulses. He does not teach or suggest that the width of the bottom power pulses is selected to have a width longer than the recording pulse that immediately follows. This particular feature is clearly described in the specification and shown with respect to each of Figures 4, 5, 6, and 7. As can be seen in each of those figures following each recording pulse whose length may be, for example, $0.3T$ or $0.4T$, there is a bottom pulse having a bottom power and a longer width for example of approximately $.7T$ or $.6T$. In each instance, the width of the bottom power pulse is wider than the pulse it immediately follows. This particular feature is also believed patentable over the prior art and is not found in or suggested by Miyamoto.

It is believed that all claims as now submitted are patentable over the art and allowance is respectfully requested.

The Director is authorized to charge any additional fees due by way of this Amendment, or credit any overpayment, to our Deposit Account No. 19-1090.

All of the claims remaining in the application are now clearly allowable. Favorable consideration and a Notice of Allowance are earnestly solicited.

Respectfully submitted,
SEED Intellectual Property Law Group PLLC

/David V. Carlson/
David V. Carlson
Registration No. 31,153

DVC:jl
Enclosure:
1 Sheet of Replacement Drawings (Figure 1A)
701 Fifth Avenue, Suite 5400
Seattle, Washington 98104
Phone: (206) 622-4900 / Fax: (206) 682-6031